

## ATTACHMENT J5

# Pittsburgh 171st ARW, PA ANG, Electric Distribution System

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# **J5 Pittsburgh 171st ARW, PA ANG, Electric Distribution System**

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## **J5.1 Pittsburgh 171st ARW, PA ANG Overview**

The Pennsylvania Air National Guard (PA ANG) 171st Air Refueling Wing (ARW) is located at the Pittsburgh International Airport, approximately 16 miles northwest of downtown Pittsburgh in Allegheny County, Pennsylvania. The base is accessible from US Highway 60 at the McClaren Road exit. The 171<sup>st</sup> ARW mission is to provide aerial in-flight refueling and passenger/cargo transportation. The base currently has 20 KC-135 Air Refueling Tankers. The activities of the 171<sup>st</sup> ARW are estimated to have an economic impact of more than \$50 million on the Pittsburgh area.

The 171st ARW base employs 418 full-time personnel during regular weekday shifts. Of the 418 personnel, 293 are technicians, 116 are Active Guard Reserve full-time (AGR), and 9 are state employees. Traditional guardsmen add 1034 personnel that are on the installation during their respective Unit Training Assembly (UTA) weekend. The UTA weekend occurs one weekend each month for each unit.

The 171st ARW occupies 176 acres leased from the Allegheny County Department of Aviation. Construction of the base began in 1949 for the 112<sup>th</sup> Fighter Group. After several unit and mission changes at the PA ANG, the 171<sup>st</sup> moved to the current base in 1964. The 171<sup>st</sup> maintains approximately 52 buildings and structures with the breakdown being 40 industrial buildings and 12 administrative buildings. Major additions or deletions to the installation are not planned at this time.

## **J5.2 Electric Distribution System Description**

### **J5.2.1 Electric Distribution System Fixed Equipment Inventory**

The 171st ARW electric distribution system consists of all appurtenances physically connected to the distribution system from the point in which the distribution system enters the Installation and Government ownership currently starts to the point of demarcation, defined by the Right of Way. The system may include, but is not limited to, transformers, circuits, protective devices, utility poles, ductbanks, switches, and other ancillary fixed equipment. The actual inventory of items sold will be in the bill of sale at the time the system is transferred. The following description and inventory is included to provide the Contractor with a general understanding of the size and configuration of the distribution system. The Government makes no representation that the inventory is accurate. The Contractor shall base its proposal on site inspections, information in the technical library, other pertinent information, and to a lesser degree the following description and inventory. Under no circumstances shall the Contractor be entitled to any service charge adjustments based on the accuracy of the following description and inventory.

Specifically excluded from the electric distribution system privatization are:

- Base street lighting connected to the buildings
- Airfield ramp, taxiway, and runway lighting
- The Duquesne Light Company substation primary transformer and the primary lines feeding the substation

#### J5.2.1.1 Description

CMS Marketing, Service and Trading provides the electrical commodity to the 171st ARW through two lines owned and maintained by Duquesne Light Company. The two lines enter a three-phase, 1500 kilovolt-ampere (kVA) transformer where the voltage is stepped down to 4.16 kV for primary distribution to the Base. Electrical power for the Base is metered at the substation, Building 101, south of Sabre Road. Government ownership starts at the substation demand-side of the fuses.

The substation feeds the base with two separate circuits, one supplying the area west of the airfield, and the other supplying areas south and east of the airfield. There is no Supervisory Control and Data Acquisition (SCADA) system for remote operation or monitoring of the electrical system. However, Duquesne Light Company has the capability to remotely read the electric meter at the substation through a modem.

The existing system is primarily underground, with above ground lines in a few areas. The underground cable was installed in polyvinyl chloride (PVC) conduit with concrete casing between 1955 and 1975. Most of the overhead cable is original, installed in the early 1960s.

Underground cables and ducts, and most of the overhead cables are in good condition. Transformers are generally in good condition, and the polychlorinated biphenyl (PCB) contaminated electrical equipment has been replaced. Handholes and power poles are in good condition. The Base has systemic problems with 3-phase equipment motors (such as for air conditioning compressors) burning up due to single phasing characteristics when power is intermittently lost, or when restoring Base power after outages. The Base is studying the installation of a 3-phase loss relay system to rectify the problem. There are no known code violations or discrepancies.

The AAFES-Base Exchange and the Department of Public Welfare are both tenants on base, and pay for their electricity directly to the 171st ARW. A negotiated charge rate based on square footage is in place between the 171st ARW and these two customers.

#### J5.2.1.2 Inventory

**Table 1** provides a general listing of the major electric distribution system fixed assets for the 171st ARW electric distribution system included in the sale.

**TABLE 1**  
Fixed Inventory  
*Electric Distribution System 171st ARW, PA ANG*

Item	Size	Quantity	Unit	Approximate Year of Construction
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Item	Size	Quantity	Unit	Approximate Year of Construction
<u>Copper Cable</u>				
Overhead conductor, 3ph, 4w,	#1/0	18296	SCLF	1975
Overhead conductor, 3ph, 4w,	#2/0	85376	SCLF	1965
Overhead conductor, 3ph, 4w,	#1/0	38416	SCLF	1955
<u>Aluminum Cable</u>				
Underground Conductor 3ph, 4w, in conduit	#1	88732	SCLF	1975
Underground Conductor 3ph, 4w, in conduit	#2/0	15340	SCLF	1975
Underground Conductor 3ph, 4w, in conduit	#2/0	1620	SCLF	2003
Underground Conductor 3ph, 4w, in conduit	#4/0	15340	SCLF	1975
Underground Conductor 3ph, 4w, in conduit	#2 CU	25972	SCLF	1965
Underground Conductor 3ph, 4w, in conduit	#1/0 CU	38820	SCLF	1965
Underground Conductor 3ph, 4w, in conduit	#2 CU	25972	SCLF	1955
Underground Conductor 3ph, 4w, in conduit	#1/0 CU	38820	SCLF	1955
<u>Hardware</u>				
Guy wire and anchor		24	EA	1975
Guy wire and anchor		13	EA	1965
Guy wire and anchor		12	EA	1955
<u>Ductbank</u>				
Ductbank, Concrete encased		7,463	LF	1975
Ductbank, Concrete encased		4,049	LF	1965
Ductbank, Concrete encased		4,049	LF	1955
Ductbank, Concrete encased		375	LF	2003
<u>Pre-cast Handholes</u>				
Handhole	4.5X3.1X2	11	EA	1975
Handhole	4.5x3.1x2	8	EA	1965
<u>Oil Fed Transformer Pad Mounted</u>				
3-Phase Transformer	150.0	2	EA	2000
3-Phase Transformer	750.0	1	EA	2000
3-Phase Transformer	225.0	2	EA	2000
3-Phase Transformer	75.0	1	EA	1985
3-Phase Transformer	150.0	3	EA	1985

Item	Size	Quantity	Unit	Approximate Year of Construction
3-Phase Transformer	300.0	3	EA	1985
3-Phase Transformer	500.0	1	EA	1985
3-Phase Transformer	500.0	2	EA	2003
<u>Oil filled transformers, pole mounted</u>				
1-Phase Transformer	10.0	2	EA	1985
1-Phase Transformer	15.0	1	EA	1985
1-Phase Transformer	25.0	1	EA	1985
1-Phase Transformer	37.5	4	EA	1985
1-Phase Transformer	50.0	3	EA	1985
1-Phase Transformer	100.0	3	EA	1985
1-Phase Transformer	10.0	2	EA	1975
1-Phase Transformer	15.0	1	EA	1975
1-Phase Transformer	25.0	3	EA	1975
1-Phase Transformer	37.5	1	EA	1975
1-Phase Transformer	50.0	4	EA	1975
1-Phase Transformer	100.0	3	EA	1975
1-Phase Transformer	10.0	1	EA	1965
1-Phase Transformer	50.0	1	EA	1965
1-Phase Transformer	75	1	EA	1965
1-Phase Transformer	100	1	EA	1965
<u>Terminations</u>				
Primary Cable Terminations and Lugs		34	EA	2000
Primary Cable Terminations and Lugs		43	EA	1982
<u>Electric Poles</u>				
Wood Pole	30.0	4	EA	1985
Wood Pole	35.0	7	EA	1985
Wood Pole	40.0	4	EA	1985
Wood Pole	30.0	4	EA	1975
Wood Pole	35.0	12	EA	1975
Wood Pole	40.0	4	EA	1975
Wood Pole	30.0	5	EA	1965
Wood Pole	35.0	7	EA	1965
Wood Pole	40.0	3	EA	1965

Item	Size	Quantity	Unit	Approximate Year of Construction
Wood Pole	30.0	6	EA	1955
Wood Pole	35.0	6	EA	1955
Wood Pole	40.0	5	EA	1955
<u>Light Poles</u>				
Aluminum Pole	30.0	28	EA	1985
Aluminum Pole	30.0	25	EA	1995
Aluminum Pole	14.0	25	EA	1995
<u>Lights</u>				
Exterior 1000W HPS Fixture	-	24	EA	1995
Exterior Fixture 250W HPS	-	30	EA	1985
Exterior Fixture 400W HPS	-	18	EA	1985
<u>Control Equipment</u>				
3-ph Fused Cutout , pole mounted	-	3	EA	2000
3-ph Fused Cutout , pole mounted	-	9	EA	1975
3-ph low profile switch, parking stand	-	1	EA	2000
3-ph low profile switch, parking stand	-	1	EA	1998
3-ph Gang Operated Air Switch	2-Way	3	EA	1955
3-ph Capacitor Bank, 5kvar	-	2	EA	1975
<u>Lightening Arrestors</u>				
Lightening Arrestors	-	5	EA	2000
Lightening Arrestors	-	23	EA	1985
Lightening Arrestors	-	2	EA	1975
<u>Grounding</u>				
Driven Ground	-	10	EA	2000
Driven Ground	-	26	EA	1975
Driven Ground	-	13	EA	1965
Driven Ground	-	9	EA	1955
Driven Ground	-	46	EA	1985
<u>Risers</u>				
Riser conduit and terminators	2	150	LF	1975
Meter	480/277V, 800Amps	1	EA	1975

Notes:

AWG = American Wire Gauge

ea = each

HPS=High pressure sodium (luminaire)

Item	Size	Quantity	Unit	Approximate Year of Construction
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lf = linear feet

Nom kVA = nominal kilovolt-amperes

ph – phase

V = volts

w = wire

### J5.2.2 Electric Distribution System Non-Fixed Equipment and Specialized Tools

Table 2 lists other ancillary equipment (spare parts) and Table 3 lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment, vehicles, and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment, vehicles, and tools.

TABLE 2

Spare Parts

*Electric Distribution System 171st ARW, PA ANG*

Qty	Item	Make/Model	Description	Remarks
None				

TABLE 3

Specialized Vehicles and Tools

*Electric Distribution System 171st ARW, PA ANG*

Description	Quantity	Location	Maker
None			

### J5.2.3 Electric Distribution System Manuals, Drawings, and Records

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4

Manuals, Drawings, and Records

*Electric Distribution System 171st ARW, PA ANG*

Qty	Item	Description	Remarks
1 Set	Electrical Distribution System Drawings	Electrical Distribution System Drawings	

## J5.3 Specific Service Requirements

The service requirements for the 171st ARW electric distribution system are as defined in the Section C, *Description/Specifications/Work Statement*. The following requirements are specific to the 171st ARW electric distribution system and are in addition to those found in Section C. If there is a conflict between requirements described below and Section C, the requirements listed below take precedence over those found in Section C.

- Provide marks on the ground to show locations of underground distribution lines on an as needed basis as other entities request. Mark utilities in the field to show location and depth.
- The Contractor shall provide monthly meter reading reports in accordance with Paragraph J3.6, and that meet the following requirements:

The Contractor shall keep a meter book with monthly consumption and demand (if applicable) for each meter reading. Meter books shall also include building address or facility number, meter number, previous month readings, current month readings, multipliers for each meter, total monthly consumption, points of contact for meter questions, and procedure for converting meter reads into consumption (including multipliers). The Government may provide a meter reading report format to be used for meter readings.

## J5.4 Current Service Arrangement

Duquesne Light Company owns and operates the distribution system leading to the Base. The CMS Marketing, Services and Trading Company is the electric commodity provider to the 171<sup>st</sup> ARW. The FY 2002 annual electric usage was 6,131MWh. The average monthly usage was 510,000 kWh with the maximum occurring in August with 597,000 kWh and the minimum occurring in September with 387,000 kWh.

## J5.5 Secondary Metering

### J5.5.1 Existing Secondary Meters

Table 5 provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings for all secondary meters IAW Paragraph C.3 and J5.6 below.

**TABLE 5**  
Existing Secondary Meters  
*Electric Distribution System 171st ARW, PA ANG*

Meter Location	Meter Description
Bldg 320	Basic meter 480/277V, 800Amps

## J5.5.2 Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in **Table 6**. New secondary meters shall be installed IAW Paragraph C.13, Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Paragraphs C.3 and J5.6 below.

**TABLE 6**  
New Secondary Meters  
*Electric Distribution System 171st ARW, PA ANG*

Meter Location	Meter Description
Bldg 100 Gate #2	Basic meter 208/120V , 60Amps
Bldg 102 Compliance	Basic meter 208/120V, 200Amps
Bldg 103 Security Police	Basic meter 208/120V, 400Amps
Bldg 103 Security Police (NDI)	Basic meter 480V, 400Amps
Bldg 104 Traffic Check House	Basic meter 208/120V, 225Amps
Bldg 105 Base Exchange	Basic meter 208/120V, 200Amps
Bldg 107 Squad Ops	Basic meter 480/277V, 200Amps
Bldg 108 Fire Station	Basic meter 208/120V, 600Amps
Bldg 110 Base Supply/Administration	Basic meter 480/277V, 400Amps
Bldg 112 Petroleum Operations	Basic meter 480/277V, 1600Amps
Bldg 113 Petroleum Operations	Basic meter 208/120V, 400Amps
Bldg 120 Base Supply	Basic meter 208/120V, 200Amps
Bldg 121 Hazardous Material Storage	Basic meter 208/120V, 200Amps
Bldg 200 Small Arms Range	Basic meter 208/120V, 60Amps
Bldg 205 BCE Maintenance	Basic meter 208/120V, 1600Amps
Bldg 206 Weather Flight	Basic meter 480/277V, 400Amps
Bldg 212 BCE Storage	Basic meter 208/120V, 100Amps
Bldg 300 Base Headquarters	Basic meter 480/277V, 800Amps
Bldg 300 Dining Hall	Basic meter 208/120V, 2000Amps
Bldg 302 Hangar	Basic meter 480/277V, 1600Amps
Bldg 302A Squadron Operations	Basic meter 208/120V, 600Amps
Bldg 303 Fabrication Shop	Basic meter 208/120V, 1600Amps
Bldg 304 Fuel Cell	Basic meter 480/277V, 800Amps
Bldg 305 Cam Mobility Storage	Basic meter 208/120V, 200Amps
Bldg 305 Cam Mobility Storage	Basic meter 440V, 200Amps
Bldg 307 Non-Power Support Shop	Basic meter 480/277V, 400Amps

Bldg 310 Jet Engine Maintenance Shop	Basic meter 480/277V, 600Amps
Bldg 314 Pump House	Basic meter 480/277V, 225Amps
Bldg 316 Powered Support Equipment Shop	Basic meter 480/2277V, 600Amps
Bldg 317 Wash Rack	Basic meter 208/120V, 125Amps
Bldg 402 Remote Flightline Office	Basic meter 220V, 60Amps
Bldg 403 Supply Storage Shed	Basic meter 220V, 100Amps
Bldg 404 Vehicle Maintenance	Basic meter 208/120V, 1200Amps

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## J5.6 Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following:

1. Invoice (IAW G.2). The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25<sup>th</sup> of each month for the previous month. Invoices shall be submitted to:

Department of Military Affairs  
State Armory Board  
Federal Service Contracts  
Building O-47  
Annville, PA 17003-5002  
717-772-7002

2. Outage Report. The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall be submitted by the 25<sup>th</sup> of each month for the previous month. Outage reports shall be submitted to:

171st ARW/CES  
Base civil Engineer  
300 Tanker Road #4217  
Coraopolis, PA 15108-4217  
412-474-7614

3. Meter Reading Report. The monthly meter reading report shall show the current and previous month readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15<sup>th</sup> of each month for the previous month. Meter reading reports shall be submitted to:

171st ARW/CES  
Base civil Engineer  
300 Tanker Road #4217

Coraopolis, PA 15108-4217  
412-474-7614

4. System Efficiency Report. If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25<sup>th</sup> of each month for the previous month. System efficiency reports shall be submitted to:

171st ARW/CES  
Base civil Engineer  
300 Tanker Road #4217  
Coraopolis, PA 15108-4217  
412-474-7614

## J5.7 Energy Saving Projects

IAW Paragraph C.3, Requirement, the following projects have been implemented on the distribution system by the Government for energy conservation purposes.

- No energy conservation projects have been implemented.

## J5.8 Service Area

IAW Paragraph C.4, Service Area, the service area is defined as all areas within the 171st ARW boundaries.

## J5.9 Off-Installation Sites

No off-installation sites are included in the sale of the 171st ARW electric distribution system.

## J5.10 Specific Transition Requirements

IAW Paragraph C.13, Transition Plan, **Table 7** provides a listing of service connections and disconnections required upon transfer.

**TABLE 7**  
Service Connections and Disconnections  
*Electric Distribution System 171st ARW, PA ANG*

Location	Description
None	No new service connections will be required as a result of privatization.

## J5.11 Government Recognized System Deficiencies

**Table 8** provides a listing of system improvements that the Government has planned. The Government recognizes these improvement projects as representing current deficiencies associated with the 171st ARW electric distribution system. If the system is sold, the Government will not accomplish these planned improvements. The Contractor shall make a determination as to its actual need to accomplish and the timing of any and all such planned improvements. Capital upgrade projects shall be proposed through the Capital Upgrades and Renewal and Replacement Plan process and will be recovered through [Schedule L-3](#). Renewal and Replacement projects will be recovered through [Sub-CLIN AB](#).

**TABLE 8**  
System Deficiencies  
*Electric Distribution System 171st ARW, PA ANG*

Project Location	Project Description
Underground wire between CE building and entrance to Bldg 300	Approximately 2000 L.F. of underground aluminum 4160 4 wire is close to being overloaded and has no fuses. The wire needs to be replaced with fused sectional switches installed.